CLAIMS

What is claimed is:

1. A method for processing data in a MATLAB® environment of a computer, comprising the steps of:

    a.   embedding input data and associated meta-data in a single object; and

    b.   constructing the input data and associated meta-data into a plurality of statistical variables,

wherein the plurality of statistical variables can be processed statistically.

2. The method of claim 1, wherein the plurality of statistical variables form a coherent structure.

3. The method of claim 2, wherein the plurality of statistical variables include continuous variables, categorical variables, rates, proportions, compound data, B-spline data, censored survival data, data from a Poisson process, binary response data, logical data, string data and longitudinal data.

4. The method of claim 2, wherein a product of at least two of the plurality of statistical variables produces a new statistical variable.

5. The method of claim 1, further comprising a step of creating a contingency table from the plurality of statistical variables.

6. The method of claim 5, wherein the contingency table is a two-way contingency table.

7. The method of claim 5, wherein the contingency table is a three-way contingency table.

8. The method of claim 5, wherein the step of creating a contingency table from the plurality of statistical variables comprises a step of creating the contingency table using the hypertext markup language.

9. The method of claim 8, wherein the contingency table created by using the hypertext markup language is generated on a web page.

10. The method of claim 1, further comprising a step of aggregating a dataset from the plurality of statistical variables.

11. The method of claim 10, wherein the step of aggregating a dataset from the plurality of statistical variables comprises the steps of:

    a. providing a plurality of objects with same length, each object having a set of statistical variables;

    b. providing meta-data associated with the plurality of objects; and

    c. constructing a dataset from the plurality of objects and the associated meta-data,

wherein all statistical variables in the dataset can be statistically processed at once.

12. The method of claim 11, wherein all statistical variables in the dataset can be statistically processed at once using standard MATLAB® syntax.

13. A method for processing data in a MATLAB® environment of a computer, comprising the steps of:

    a. providing a statistical model with control parameters;

    b. providing input data;

    c. constructing the input data and the control parameters into a single object; and

    d. processing the input data in the single object to produce an output according to the statistical model.

14. The method of claim 13, further comprising a step of adjusting the input data.

15. The method of claim 14, when the input data are adjusted, the output is changed accordingly.

16. The method of claim 15, further comprising a step of viewing and documenting the changes in the output interactively through a MATLAB® based graphical interface.

17. The method of claim 14, wherein the step of adjusting the input data comprises a step of adjusting the input data interactively through a MATLAB® based graphical interface.

18. The method of claim 13, further comprising a step of adjusting control parameters.

19. The method of claim 18, when the control parameters are adjusted, the output is changed accordingly.

20. The method of claim 18, wherein the step of adjusting control parameters comprises a step of adjusting the control parameters interactively through a MATLAB® based graphical interface.

21. The method of claim 13, wherein the statistical model is a regression model.

22. The method of claim 21, wherein the regression model includes a generalized linear model.

23. The method of claim 21, wherein the regression model includes a generalized additive model.

24. The method of claim 21, wherein the regression model includes a proportional hazards regression model.

25. The method of claim 21, wherein the regression model includes a smoother.

26. The method of claim 13, wherein the statistical model is a model for censored survival data.

27. The method of claim 26, wherein the model for censored survival data includes a regression model.

28. The method of claim 26, wherein the model for censored survival data includes a generalized linear (Cox) model.

29. The method of claim 26, wherein the model for censored survival data includes a local likelihood model.

30. The method of claim 26, wherein the model for censored survival data includes lifetable methods.

31. The method of claim 26, wherein the model for censored survival data includes hazard spline regression.

32. A computer program product in a computer readable medium of instructions, comprising:

      a.   instructions within the computer readable medium for embedding input data and associated meta-data in a single object; and

      b.   instructions within the computer readable medium for constructing the input data and associated meta-data into a plurality of statistical variables,

wherein the plurality of statistical variables can be processed statistically.

33. The computer program product of claim 32, wherein the instructions within the

computer readable medium for constructing the input data and associated meta-data into a plurality of statistical variables comprise the instructions within the computer readable medium for generating the plurality of statistical variables including continuous variables, categorical variables, rates, proportions, compound data, B-spline data, censored survival data, data from a Poisson process, binary response data, logical data, and longitudinal data.

34. The computer program product of claim 33, further comprising instructions within the computer readable medium for producing a new statistical variable by a product of at least two of the plurality of statistical variables.

35. The computer program product of claim 32, further comprising instructions within the computer readable medium for creating a contingency table from the plurality of statistical variables.

36. The computer program product of claim 35, wherein the contingency table is a two-way contingency table.

37. The computer program product of claim 35, wherein the contingency table is a three-way contingency table.

38. The computer program product of claim 35, wherein the instructions within the computer readable medium for creating a contingency table from the plurality of statistical variables comprises the instructions within the computer readable medium for creating a contingency table from the plurality of statistical variables written in the hypertext markup language.

39. The computer program product of claim 38, wherein the instructions within the computer readable medium for creating a contingency table from the plurality of statistical variables written in the hypertext markup language comprise instructions within the computer readable medium for generating the contingency table on a web page.

40. The computer program product of claim 32, further comprising instructions within the computer readable medium for aggregating a dataset from the plurality of statistical variables.

41. The computer program product of claim 40, wherein the instructions within the computer readable medium for aggregating a dataset from the plurality of statistical variables comprise instructions within the computer readable medium for processing all statistical variables in the dataset at once using standard MATLAB® syntax.

42. A computer program product in a computer readable medium of instructions for processing data in a MATLAB® environment of a computer, comprising:

    a. Instructions within the computer readable medium for providing a statistical model with control parameters;

    b. Instructions within the computer readable medium for receiving and providing input data;

    c. Instructions within the computer readable medium for constructing the input data and the control parameters into a single object; and

    d. Instructions within the computer readable medium for processing the input data in the single object to produce an output according to the model.

43. The computer program product of claim 42, further comprising instructions within the computer readable medium for adjusting the input data.

44. The computer program product of claim 43, wherein when the input data are adjusted, the output is changed accordingly.

45. The computer program product of claim 44, further comprising instructions within the computer readable medium for viewing and documenting the changes in the output interactively through a MATLAB® based graphical interface.

46. The computer program product of claim 43, further comprising instructions within the computer readable medium for adjusting the input data interactively through a MATLAB® based graphical interface.

47. The computer program product of claim 42, further comprising instructions within the computer readable medium for adjusting control parameters.

48. The computer program product of claim 47, wherein when the control parameters are adjusted, the output is changed accordingly.

49. The computer program product of claim 47, wherein the instructions within the computer readable medium for adjusting control parameters comprise instructions within the computer readable medium for adjusting control parameters interactively through a MATLAB® based graphical interface.

50. The computer program product of claim 42, wherein the statistical model is a regression model.

51. The computer program product of claim 50, wherein the regression model includes a generalized linear model.

52. The computer program product of claim 50, wherein the regression model includes a generalized additive model.

53. The computer program product of claim 50, wherein the regression model includes a proportional hazards regression model.

54. The computer program product of claim 50, wherein the regression model includes a smoother.

55. The computer program product of claim 42, wherein the statistical model is a model for censored survival data.

56. The computer program product of claim 55, wherein the model for censored survival data includes a regression model.

57. The computer program product of claim 55, wherein the model for censored survival data includes a generalized linear (Cox) model.

58. The computer program product of claim 55, wherein the model for censored survival data includes a local likelihood model.

59. The computer program product of claim 55, wherein the model for censored survival data includes lifetable methods.

60. The computer program product of claim 55, wherein the model for censored survival data includes hazard spline regression.

61. A system for processing data in a MATLAB® environment of a computer, comprising:

    a.   a processing means for embedding input data and associated meta-data in a single object; and

    b.   an operating means for constructing the input data and associated meta-data into a plurality of statistical variables, wherein the plurality of statistical variables can be processed statistically.

62. The system of claim 61, further comprising means for creating a contingency table from the plurality of statistical variables.

63. The system of claim 62, wherein the means for creating a contingency table from the plurality of statistical variables comprises means for creating the contingency table using the hypertext markup language.

64. The system of claim 63, wherein the means for creating the contingency table using the hypertext markup language comprises means for generating the contingency table on a web page.

65. The system of claim 61, further comprising means for aggregating a dataset from the plurality of statistical variables.

66. The system of claim 61, further comprising means for processing all statistical variables in the dataset statistically at once using standard MATLAB® syntax.

67. A system for processing data in a MATLAB® environment of a computer, comprising:
    a. means for providing a statistical model with control parameters;
    b. means for providing input data;
    c. means for constructing the input data and the control parameters into a single object; and
    d. means for processing the input data in the single object to produce an output according to the statistical model.

68. The system of claim 67, wherein the input data are adjustable, and further comprising means for changing the output accordingly when the input data are adjusted.

69. The system of claim 68, further comprising means for viewing and documenting the changes in the output interactively through a MATLAB® based graphical interface.

70. The system of claim 68, further comprising means for adjusting the input data interactively through a MATLAB® based graphical interface.

71. The system of claim 67, wherein the control parameters are adjustable, and further comprising means for changing the output accordingly when the set of control parameters are adjusted.

72. The system of claim 71, further comprising means for adjusting the control parameters interactively through a MATLAB® based graphical interface.